



unIMC
UNIVERSITÀ DI MACERATA

DIPARTIMENTO DI
GIURISPRUDENZA

l'umanesimo che innova

LA WEB ECONOMY. REGOLE, MODELLI E TENDENZE DEL CAPITALISMO DIGITALE

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30 Novembre 2018

Main Topics

- Business & Information: Deconstructing The Old Economy – Enabling New Business Models
- FANGs: The Big Monopolies of the Digital Economy
- Industry 4.0 And The New Geography of Localization
- Has The Digital Business Approach Any Impact On The Macro - Economic Trends?

Business & Information

- In the physical commerce, if you want to buy a shirt you have a million different choices and, **making comparisons among them, is time-consuming, difficult, and, inevitably, incomplete**
- Consumers need Suppliers and Retailers to help them navigate among their choices
- Suppliers and Retailers help consumers using tools like *branding, advertising, retail outlets and sales channels, merchandising, loyalty schemes*
- On the Internet, by contrast, **millions of people exchange massive amounts of information directly, quickly, and for free**. Consumers can search much more comprehensively and at negligible cost.

Navigation becomes a separate business,
unbundled from production, marketing, and
distribution



Deconstruction

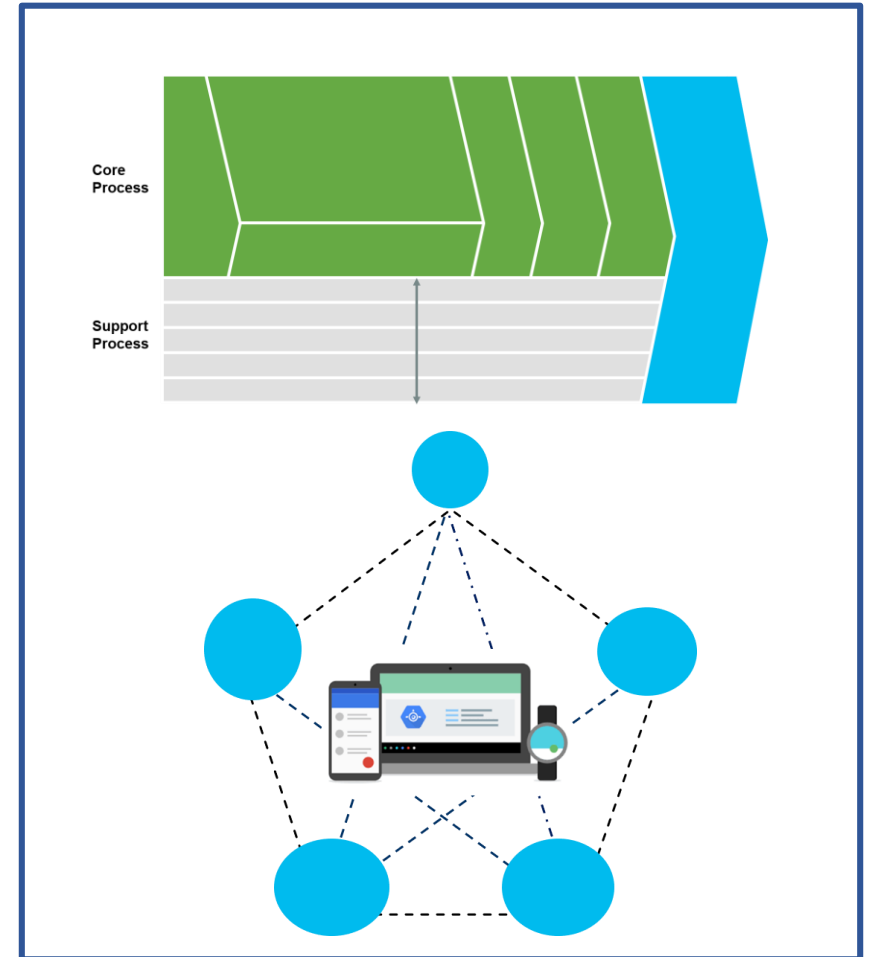
Deconstruction means dismantling and reformulation of traditional business structure:

- End of the trade – off between richness and reach
- **Separation of the economics of information from the economics of things**
- The new economic of information blows all the traditional structures (value chains, supply chain, organizations, etc)
- The pieces will then recombine into new business structure, based on the separate economics of information and things.

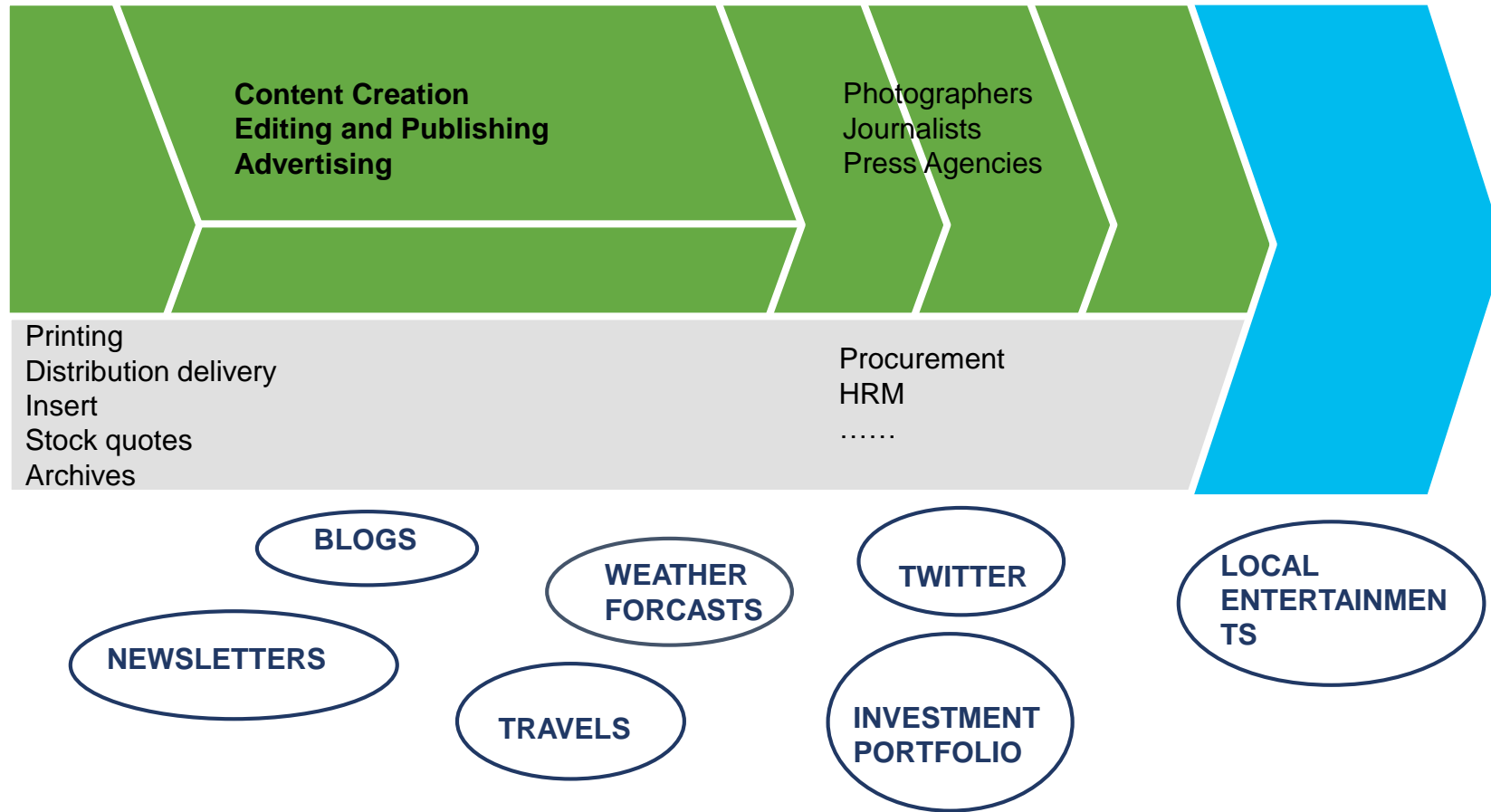
Consequently a number of competitive advantages have been challenged:

- Hierarchical structure of supply chains
- Asymmetries of information
- Corporation boundaries
- Entry Barriers

From Pipeline Business to Web Platforms

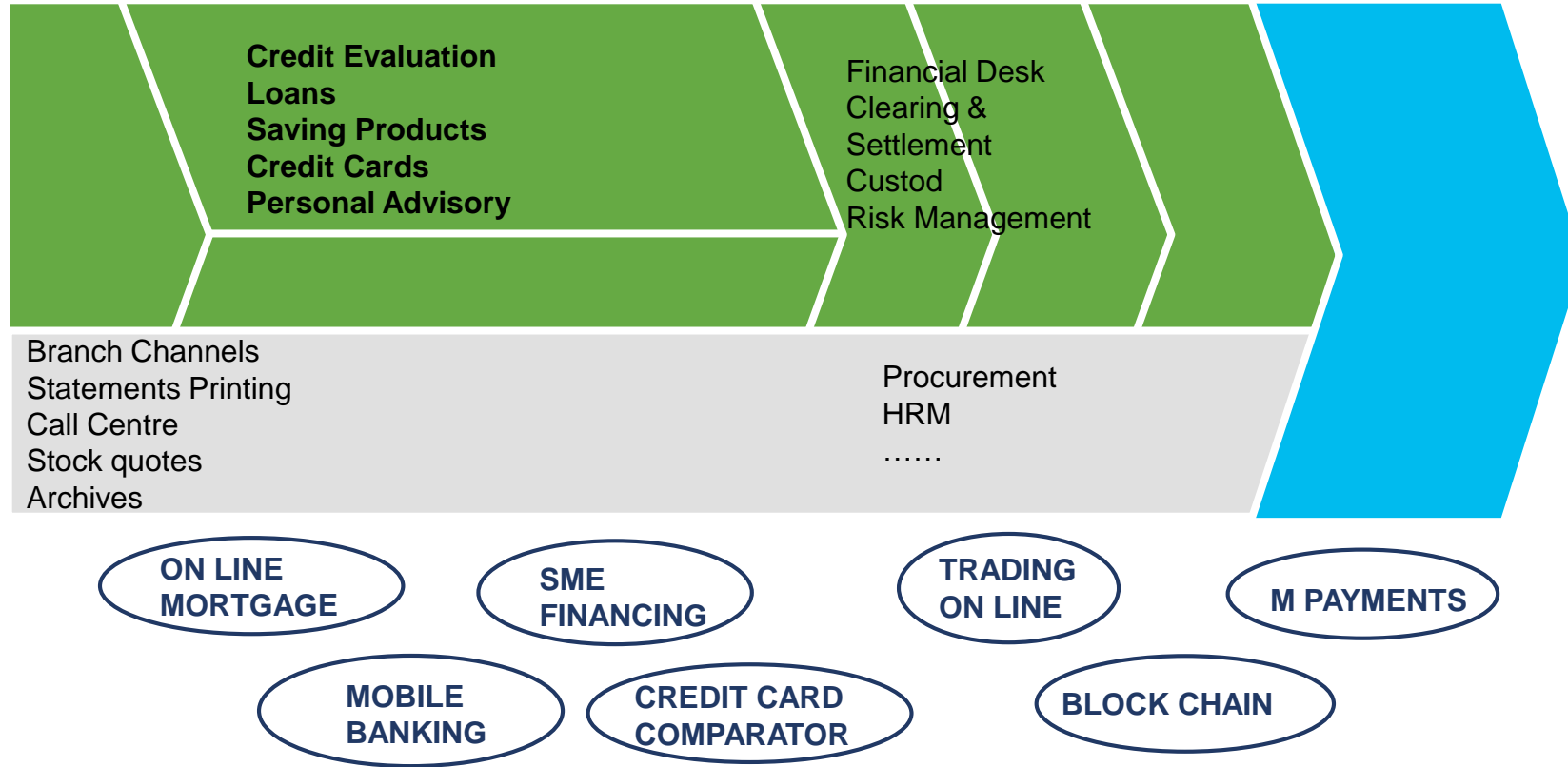


Newspapers Deconstruction



« Daily Me» New Services

Banking Deconstruction



Multitude of Services, Different Businesses

Travel Industry: Old & New Landscapes



Travel & Tourism



UBER



HomeAway



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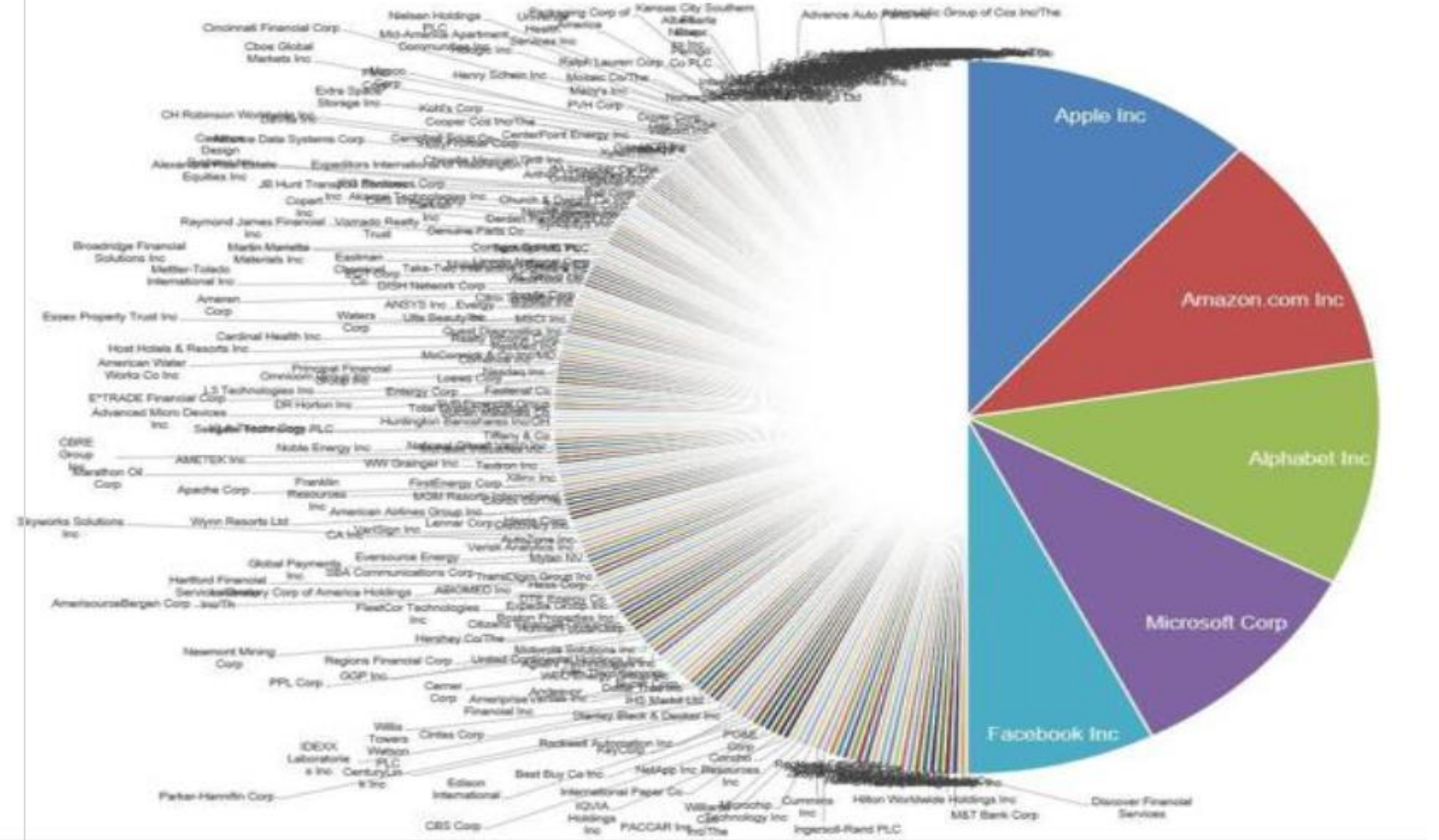
FANGs

- U.S. Financial analysts have coined the term FANGs to identify the digital economy champions listed in the NYSE
- FANGs is an acronym, meaning Facebook, Amazon, Netflix and Google
- Fangs is also an English word that means: **Big Teeth (Zanne in Italian)**
- Is that a coincidence?
- No, actually: **Aggressivity** seems to be one of their most distinctive attribute



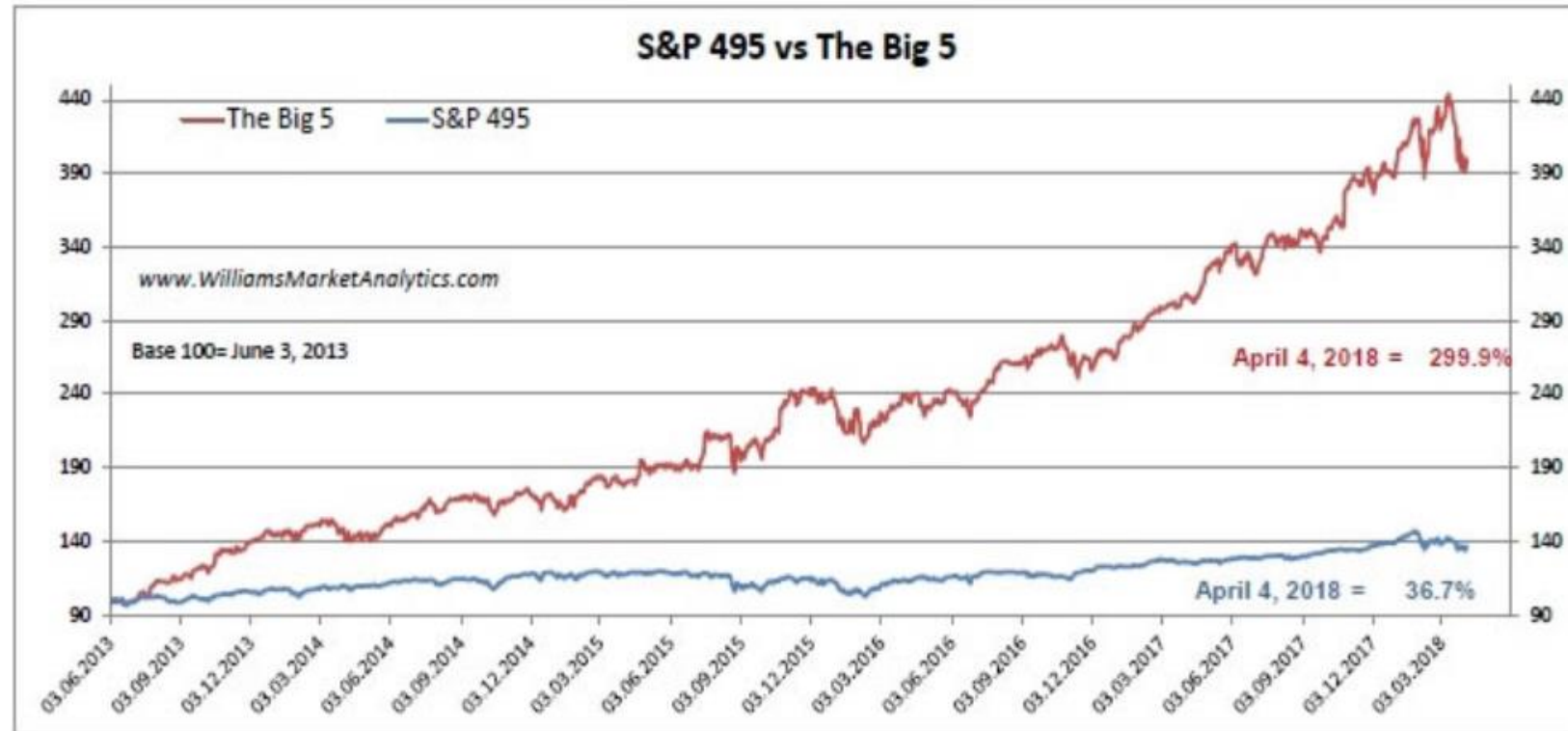
FANGs Dominate The Stock Market

- Yet financial markets fell in love with the digital economy's giants:
- The top 5 S&P 500 Companies:
 - Apple
 - Alphabet
 - Amazon
 - Microsoft
 - Facebook
- The market cap of the top 5 S&P 500 Companies:
\$4,095,058,706,432
- The market cap of the bottom 282 S&P 500 companies:
\$4,092,769,755,136



FANGs and The Stock Market: the Growth

- Investors find the tech story compelling: We all see how smart phones, social media, autonomous driving, and other technical wonders are changing the world.
- Nevertheless, investors should not buy companies for known narratives but rather for future earnings potential.



- Enthusiasm for the mega cap tech stocks provoked the creation of a new index, the **NYSE FANG+ Index**. It includes ten companies which the market has fallen in love with: Apple, Netflix, Google, NVIDIA, Amazon, Tesla, Baidu, Alibaba, Facebook, and Twitter. **These ten stocks almost DOUBLED the broad market performance in two years time**

20 November Tech Stocks Collapsed From The Strongest Level Of the Year

- 22,8%



- 20,1%



- 39,2%

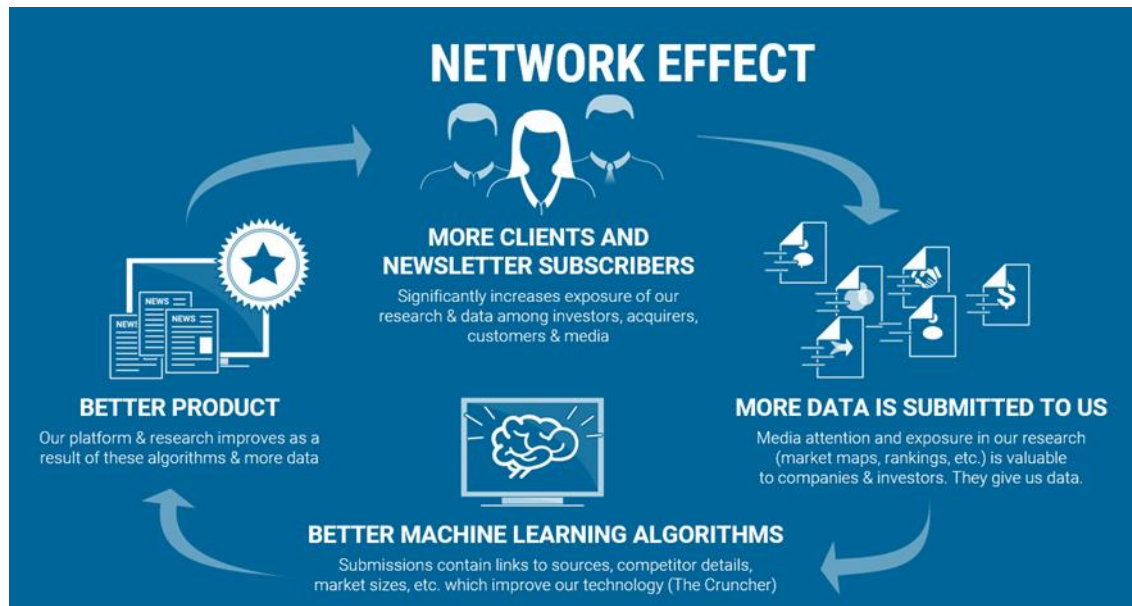


- Apple is suffering for a lower-than-expected demand for the new iPhones
- Alphabet's growth rate is slowing down, both in advertising and cloud while government regulation remains a big threat.
- Facebook is still facing challenges for the way it dealt with the 2016 election and analysts are concerned about new regulatory laws in U.S.A. and U.E.
- Amazon's and Netflix's results too disappointed the financial analysts.

If the tide turns on the FANG stocks, the stock market could pay the price

Digital Technology Enabled New Business Model

- Software codes instead of industrial plants
- Invasion and disruption of traditional business models
- **Network effect and “the winner takes all”**



Greater scale generates more value, which attracts more participants, which creates more value: a “virtuous” feedback loop that produces monopolies.

New Players’ Impact on Old Economy

- **Skype**: Telecommunication lost over **150 Md \$** of revenues in in 8 years
- **Whatsapp & Messenger** have subtracted **40% of text messages** (sms) just in 2017
- **Iphone and Android**: brought **Nokia, Erickson, Motorola, BlackBerry** and others to closing or downsizing
- **Netflix**: **Blockbuster** bankruptcy, traditional TV and Cinemas in trouble
- **Airbnb, Tripadvisor, Booking**, etc: **travel industry disappearance**
- **Apple & Others**: **music industry vanished**
- **Google, Apple, Tesla, Uber**: **automotive is the next target?**

A Controversial Development Model

The problem with these players, representing the new Web Economy, is that they have grown very fast at the expense of the Old Economy:

- **Violating traditional rules of competition** (Google copying million of books and music without paying any copyright, Amazon making fail traditional book and music shops, threatening their supplier for lowering costs)
- Not respecting fiscal rules and **frauding tax** as well as **labour laws** (see also Uber, Foodora, etc.)
- **Manipulating data**, news and personal information **against data protection laws**, privacy, journalists code of behavior, etc.
- They **burn** an amazing amount of **cash generated** to finance unrelated activities (see Alphabet/Google) or simply to keep costs low and making competitors fail (Amazon)

- Revenues 40.65 Bil \$
- Net Income 15.9 Bil \$
- N. Employees 30.275



- Revenues 177.86 Bil \$
- Net Income 3.0 Bil \$
- N. Employees 566.000



- Revenues 11.69 Bil \$
- Net Income 55.9 Mil \$
- N. Employees 5.400



- Revenues 110.86 Bil \$
- Net Income 12.6 Bil \$
- N. Employees 94.372



Digital Economy & Disruptive Innovation

- **Facebook and Google** dominate the online advertisement business, crushing their competitors in the past few years and reducing the number of independent firms.
- The two tech giants, combined, received about **63 % of all ad spending** in the U.S. in 2017 and about **50% of global ad revenue**.

Google and Facebook's hold on this market is a threat to not just the free market, but the free market of ideas

- **Amazon** is by far the largest e-commerce player in U.S. , with **an estimated share of 44%**. Last year, Amazon accounted for **53%** of all the incremental online shopping growth
- It is expected that Netflix will quickly turn cinemas (and movies industry) obsolete just like it did with DVD rentals.
- And what to say about **Airbnb, Tripadvisor, Trivago, Booking.com** towards traditional travel agencies? And **Uber** about not only taxi but tracking industry too?



Old And New Economy: A Comparison

The World's Largest Companies As N. of Employees



New economy players' impact on employment is irrelevant

Fortune 500 - Year 2018 \$M

Rank	Company	Revenues (USD million)
1	Walmart	500,3
2	State Grid	348.9
3	Sinopec Group	326.9
4	China National Petroleum	326.0
5	Royal Dutch Shell	311,9
6	Toyota Motor	265,2
7	Volkswagen	260,0
8	BP	244.5
9	Exxon Mobil	244.3
10	Berkshire Hathaway	242.1

Fortune 500: Apple N. 11, Amazon N. 18, Alphabet (Google) N. 52, Microsoft N. 71, Facebook N. 274

What is Facebook?



Making Growth Facebook's Users Base

Facebook has acquired or built many new products and services that could be monetized, but none of them have represented a significant source of revenue for the company.

Facebook's primary interest is in **diversifying their sources of user base growth, rather than diversifying their sources of revenue**

- **Instagram**, bought in 2012 has **400 million** users and the largest stockpile of photos in the world
- **WhatsApp** acquired in 2014 has **1.5 billion users** and **60 billion** messages sent per day
- **Messenger**, with **over a billion users**, is one of Facebook's most successful apps. It also features voice and video calling
- **Oculus** Virtual Reality, Facebook's motivation is to push people spending a large amount of their time in VR in the future
- **Face.com** pioneered facial recognition technology on mobile devices to power photo-tagging feature
- **Payments** Most of Facebook's non-advertising revenue comes from payments, primarily coming from in-app purchases in the desktop games offered
- **Internet services** - Facebook has been developing a costly technology to provide internet to developing countries via satellites and drones
- **Commerce** You can buy things directly from merchants on Facebook and Instagram
- **Enterprise software** - *Facebook Workplace* is a communication and collaboration tool for companies. Over 30,000 organizations have adopted it.

Will Facebook's Business - Mainly Based On Ad - Survive for Ever?



Inside Amazon

Amazon Marketplace: the #1 ecommerce marketplace

Amazon is the most monopolistic marketplace the Western world has ever seen. 44% of US e-commerce occurred on Amazon.com

AWS: the #1 Cloud Player

Amazon built AWS for their marketplace. Today ~42% of the web is powered by AWS. That is more than double Microsoft, Google and IBM combined

Alexa: the #1 voice assistant

Alexa is designed to replace everything. One click checkout isn't enough anymore. *"Hey Alexa, we're out of toothpaste, toilet paper, and tampons."*

Whole Foods: the 10th largest grocer

The Whole Foods acquisition allows Amazon to enter in food business, drugstores are the next target

Amazon Prime Air

Amazon Prime Air is a service that will deliver packages up to five pounds in 30 minutes or less using small drones.

Amazon Blue Origin

The company is developing technologies to enable private human access to space with the goal to dramatically lower costs and increase reliability.



What is Netflix?

The image shows the Netflix logo, which consists of the word "NETFLIX" in a bold, white, sans-serif font. The letters are slightly 3D with a black drop shadow. The logo is centered on a solid red rectangular background.

Netflix Business Model

- Netflix is the world's leading internet television with over **100 million members in over 190 countries** enjoying more than 125 million hours of TV shows and movies per day.
- For years, TV has used us to rigid schedules. Instead, with the rise of the digital nomadism our habits and the way we consume media has changed drastically. In this scenario, on-demand has become a dominant business model in the media industry.
- **Netflix isn't only a subscription-based media provider it is a media production company.** Some users tribes get assembled around the Netflix series which have become the symbol of our generation.

Value Proposition:

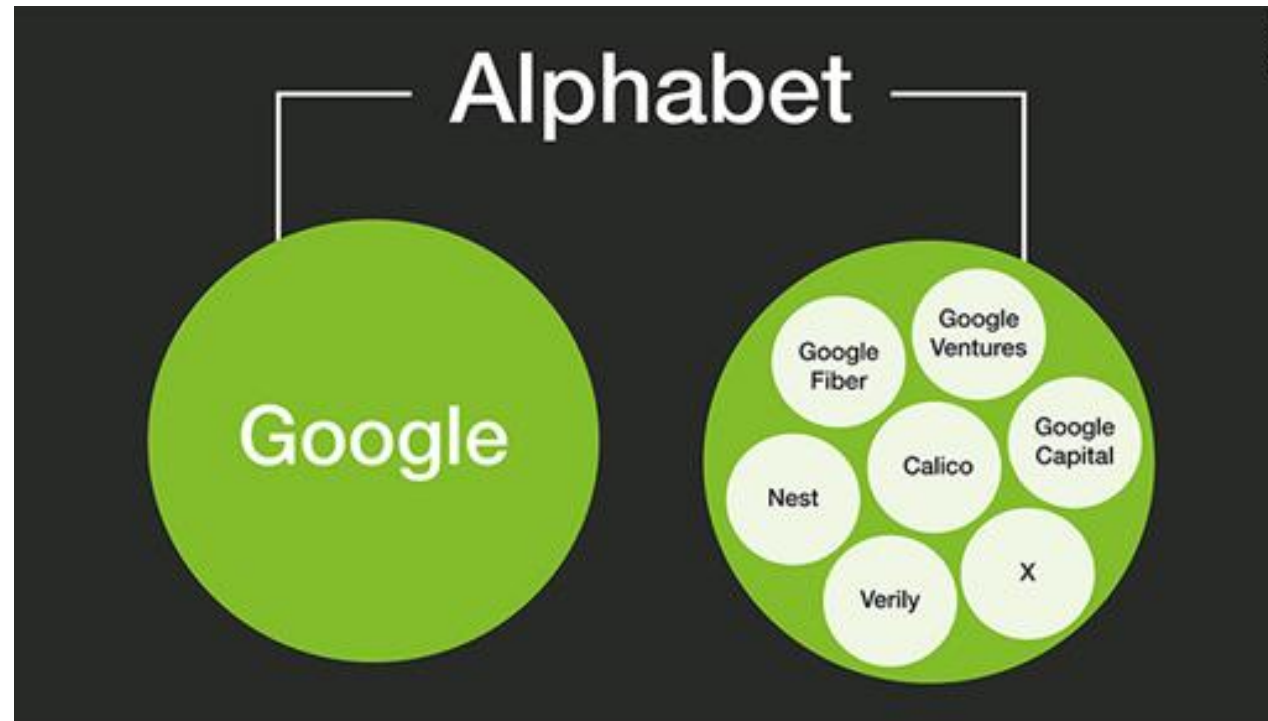
- **Affordable price**
- **Accessibility (on all devices, when and where you want)**
- **Original content (invest in own shows, based on the analysis of their own customer data)**
- **Large amount of high quality content in many different genres**





Inside Alphabet

Alphabet is divided into two main units: Google and *Other Bets*. Other Bets is best known for its "moonshot" R&D unit, X, but it also houses several other companies



Google: What We Know

Google is mostly known as the web search engine. There are more than **2.3 million Google searches per minute, which adds up to more than 100 billion Google searches per month.**

under Google's umbrella stay:

- **YouTube** acquired in 2006. The video hosting site has emerged as the world's **No. 1 video-sharing site and the No. 2 most visited site on the web**
- **Google Maps** with more than **1 billion monthly users.**
- **Google AdSense** lets publishers earn money from online content, placing ads on publishers' webpages. Advertising drives the majority of revenue for Google
- **Android**: Google's mobile operating system. Apps, movies, music, and books for Android devices can be downloaded from Google's Play Store.

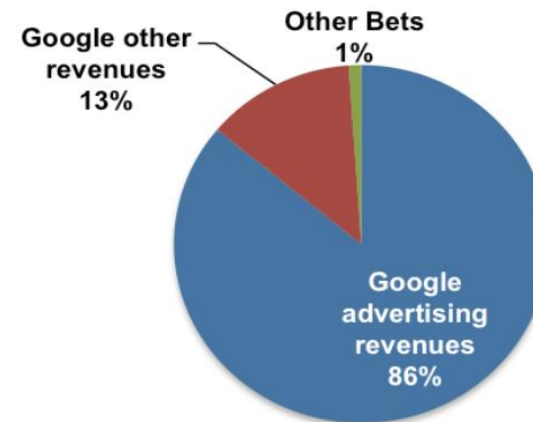


Alphabet's Other Bets

- **Access:** Google Fiber, extremely fast high-speed internet (up to 1G) and some TV
- **Verily:** healthcare and disease prevention research
- **Calico** "cure death" developing drugs that could help prolong human life by fighting age-related diseases
- **GV** early-stage venture arm, has invested in more than 300 companies, including Uber, Flatiron Health, and Slack.
- **Google Capital** (CapitalG) a growth equity investment fund. Some of its investments include Airbnb, Glassdoor, and Thumbtack.
- **Google DeepMind** artificial intelligence research, has focused on adding artificial intelligence throughout Google products,
- **G Suite and Google Cloud Platform**, competing against Amazon and Microsoft
- **Waymo** self-driving car company

- **Loon** working with mobile network operators globally to bring internet access to unconnected people around the world
- **Wing** a drone delivery system to improve the speed, cost, and environmental impact of transporting goods, and a traffic management platform to safely route drones through skies.
- **Nest** Smart home devices: thermostat, outdoor security camera, alarm system

Alphabet Revenue Segments 2017



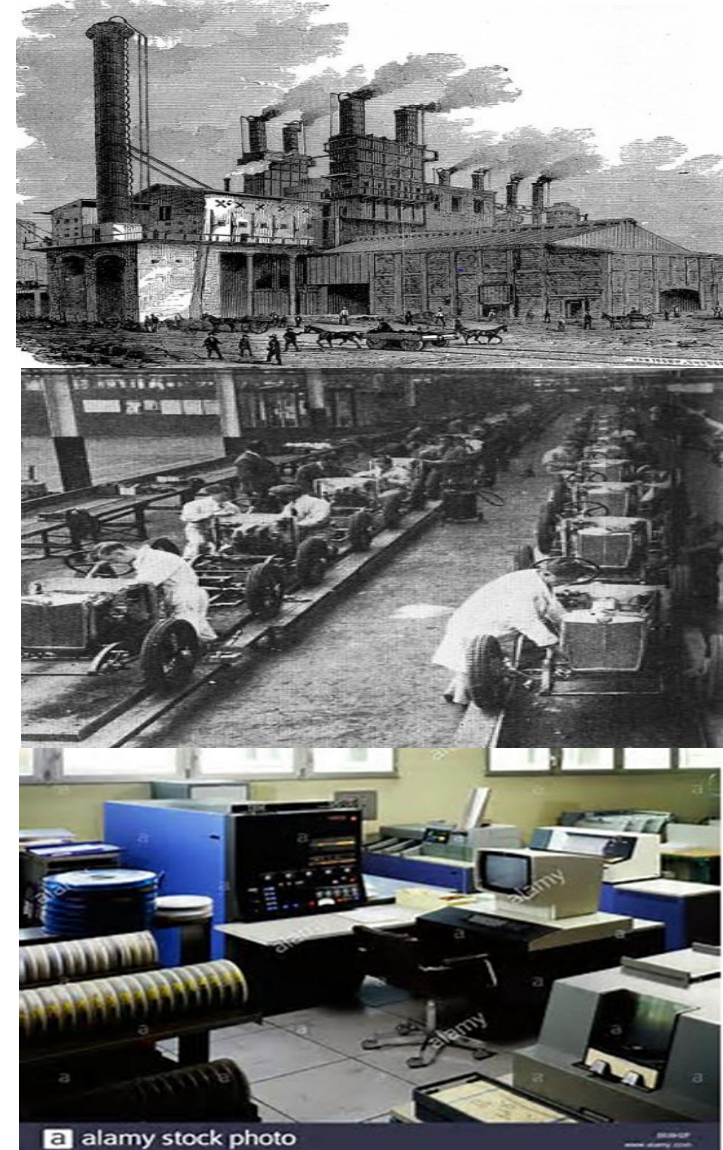
Challenges in building the future?

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- **Industry 4.0 And The New Geography of Localization**
- Has The Digital Business Approach Any Impact On The Macro - Economic Trends?

Industry 4.0 As The Fourth Industrial Revolution

- Late 1700s: **First industrial revolution** when steam power combined with mechanical production led to the industrialization of production
- From the mid-1800s: **Second industrial revolution** when electricity and assembly lines resulted in mass production
- Since the 1970s: **Third industrial revolution** when electronics and IT combined with globalization greatly accelerated industrialization
- Since 2010: **Fourth industrial revolution** links intelligent factories with every part of the production chain and next generation automation that has started to occur.



What Is Industry 4.0

- Industry 4.0 describes the *organisation of production processes based on technology and devices autonomously communicating with each other along the value chain.*
- A model of the ‘*smart*’ factory of the future where **computer-driven systems** monitor physical processes, create a virtual copy of the physical world and make decentralised decisions based on self-organisation mechanisms.
- Manufacturing systems are **vertically networked** with business processes within factories and enterprises and **horizontally connected** to spatially dispersed value networks that can be managed in real time – from the moment an order is placed right through to outbound logistics
- *These developments make the distinction between industry and services less relevant as digital technologies are connected with industrial products and services into hybrid products which are neither goods nor services exclusively.*



Industry 4.0' Origin

- **The term “Industrie 4.0” was initially coined by the German government**
- **It describes a set of industrial policies priorities with the aim of maintaining the global competitiveness of German industry**

Additional Related Terms

Industry 4.0 is not the only term that describes these new phenomena in industrial production:

- **The Internet of Things:** refers to IT systems connected to all processes, internal and external objects, supplier and customer networks; that communicate and cooperate with each other and with humans.
- **The Internet of Services:** refers to internal and cross-organizational services which are offered and utilized by participants in the value chain and driven by big data and cloud computing.
- **Advanced manufacturing:** Another term often cited in the literature to describe innovations in technology improving products or processes
- **Cyber-physical systems** i.e. software embedded in hardware *such* as sensors, that can autonomously exchange information, trigger actions and control each other independently
- **Smart factory:** exemplify some of the technical innovations under Industry 4.0 such as integration of ICT in the production process and how these could play out in practice.



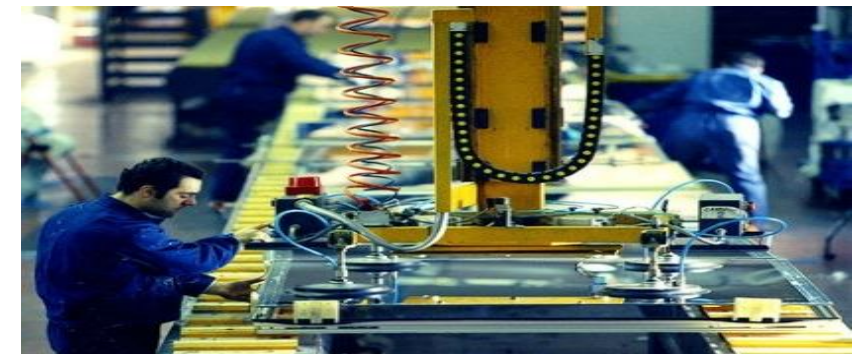
Industry 4.0: Huge Investments & Key Preconditions Are Needed

Preconditions For Implementations of Industry 4.0



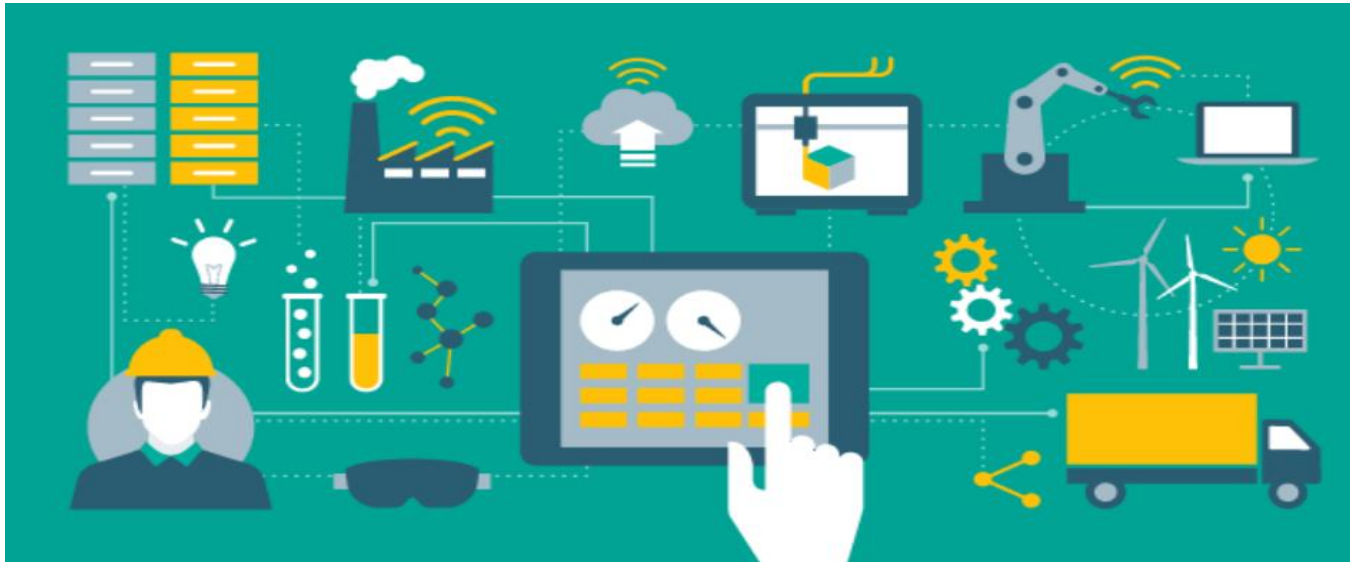
Investments' Magnitude

- To implement Industry 4.0 **€250 billion** is required during the **next ten years by German** producers alone (equalling 1-1.5% of their revenues),
- Estimates **indicate € 1,350 bn for the entire EU** over the next 15 years
- Italian Industria 4.0 aimed to stimulate about **€ 25.0 billion in three years**. It is not currently known if Government will confirm this past decision.



Industry 4.0 And Web Platforms

- Once Industry 4.0 takes place Web Platforms that we have seen in consumer world (f.i. social) become the new way to operate and competing
- Web Platforms create a single market place where producers, suppliers and final clients are in contact
- Because of the network effect any time a Web Platform enter into an industry it tends to the supremacy overwhelming traditional players



B2B Development Trend



In 2020 U.S. B2B e-commerce will exceed 1,1 trillion \$ more than double of B2C

Industry 4.0 And Web Platforms

- With each “revolution”, national industrial leadership has changed – from England, to Germany and the Continent of Europe, and then the USA: what next?
- 49% of the biggest Global Web Platform worldwide are located in 4 Chinese cities and a remaining 44% in 3 U.S. metropolitan area
- **93% of Web Platform is concentrated in 2 countries and 7 cities**

Where Web Platforms Are Located

HQ City	Country	Geographic Area	# Platforms
S. Francisco	USA	N. America	44
Seattle	USA	N. America	4
Norwalk	USA	N. America	1
Beijing	Cina	Asia	30
Shangai	Cina	Asia	14
Hangzhou	Cina	Asia	6
<u>Shenzhen</u>	Cina	Asia	5
Tokio	Giappone	Asia	5
Walldorf	Germania	Europa	1
Cape Town	S.Africa	Africa	1

Could Such A Concentration Have Any Impact On Global Competition?

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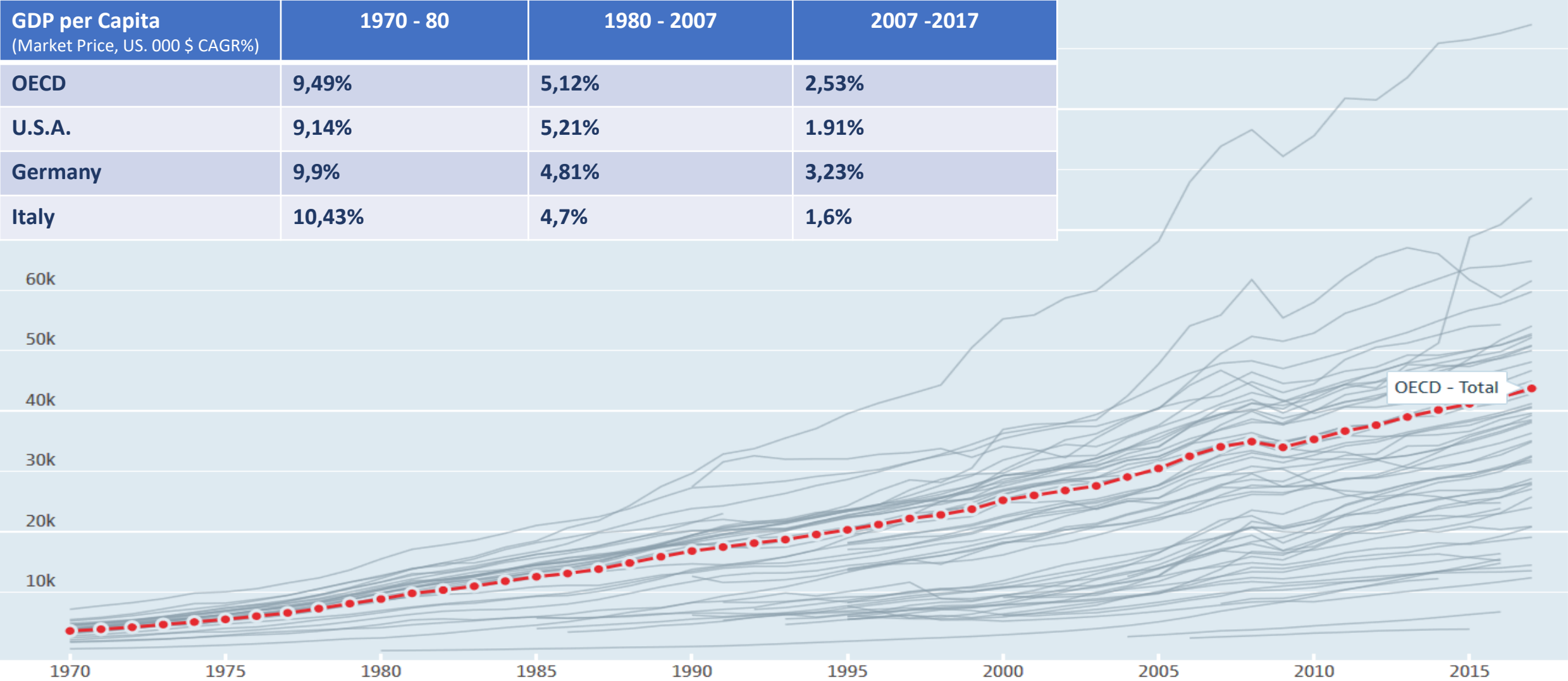
Internet's & and Digital Tech's Impact on Economy

While the digital economy was growing, gaining interest and reaching unbelievable targets and market dominance, worldwide economy started a progressive decline, still ongoing:

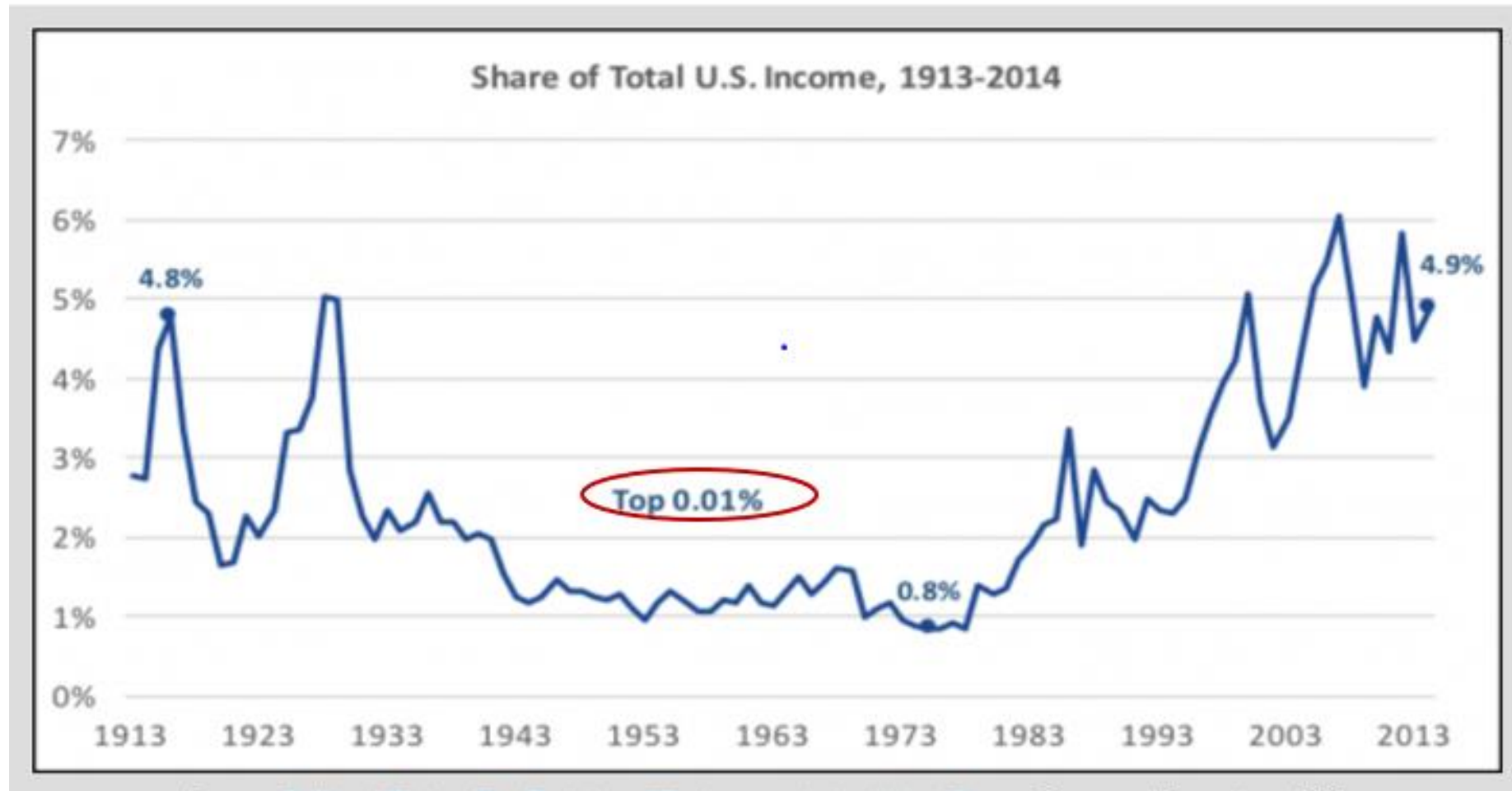
- GDP declining trend
- Productivity ratio struggles to reach last decades targets
- Unemployment growth
- Inequality gap restarted to spread

GDP Trends 1970 - 2017

GDP per Capita (Market Price, US. 000 \$ CAGR%)	1970 - 80	1980 - 2007	2007 -2017
OECD	9,49%	5,12%	2,53%
U.S.A.	9,14%	5,21%	1,91%
Germany	9,9%	4,81%	3,23%
Italy	10,43%	4,7%	1,6%



The Inequality Gap



In Summary

Are digital technology and web monopolists responsible for the economic downturn?

No, at least they are not the only cause. Anywhere, few aspects should be highlighted for further investigation:

- Up to now a significant amount of **digital technology has been devoted to consumer's leisure**, significant digital tech app in business are just starting to appear
- Monopolistic market structures have shown to be able to **influence the direction and the pace of tech change (and R&D)**
- They are also able to govern **wealth creation and its distribution**
 - Why the brilliant and philanthropic Internet entrepreneurs choose to poorly pay employees, instead (for instance), sharing the value created?
 - Is there any different mix of resources (technology, people) able to protect dignity and to avoid poverty?
 - Where could we currently find the former values of internet democracy and egalitarianism waved by the big players?
- Is it correct that assets becoming more and more **public goods** should be managed by private corporations ?
- Which different directions could be given to the progress in case public and not private has the ownership (and responsibility) to manage the next digital economic development opportunities?

Internet's Stars



Many Thanks

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